

AMENDMENTS TO THE CLAIMS

1. (Currently amended) A thin arc segment magnet having a thickness of 1-4 mm and made of [a] an R-T-B based, rare earth sintered magnet having a main component composition comprising 28-33 weight % of R and 0.8-1.5 weight % of B, the balance being substantially [Fe] T, wherein R is at least one rare earth element including Y, and T is Fe or Fe and Co, said arc segment magnet having an oxygen content of 0.3 weight % or less based on the total weight of the magnet, a density of 7.56 g/cm³ or more, a coercivity iH_c of 1.1 MA/m (14 kOe) or more at room temperature, and an orientation $Br/4\pi I_{max}$ of 96% or more in an anisotropy-providing direction at room temperature.

5. (Currently amended) A radially anisotropic, arc segment magnet having an inner diameter of 100 mm or less and made of [a] an R-T-B based, rare earth sintered magnet having a main component composition comprising 28-33 weight % of R and 0.8-1.5 weight % of B, the balance being substantially [Fe] T, wherein R is at least one rare earth element including Y, and T is Fe or Fe and Co, said arc segment magnet having an oxygen content of 0.3 weight % or less based on the total weight of the magnet, a density of 7.56 g/cm³ or more, a coercivity iH_c of 1.1 MA/m (14 kOe) or more at room temperature, and an orientation $[Br// / (Br// + Br\perp)] \times 100$ (%) of 85.5% or more at room temperature, said orientation being defined by a residual magnetic flux density Br// in a radial direction and a residual magnetic flux density Br \perp in an axial direction perpendicular to said radial direction.

8. (Currently amended) A radially anisotropic ring magnet having an inner diameter of 100 mm or less and made of [a] an R-T-B based, rare earth sintered magnet having a main component composition comprising 28-33 weight % of R and 0.8-1.5 weight % of B, the balance being substantially [Fe] T, wherein R is at least one rare earth element including Y, and T is Fe or Fe and Co, said ring magnet having an oxygen content of 0.3 weight % or less based on the total weight of the magnet, a density of 7.56 g/cm³ or more, a coercivity iHc of 1.1 MA/m (14 kOe) or more at room temperature, and an orientation $[Br_{//} / (Br_{//} + Br_{\perp})] \times 100$ (%) of 85.5% or more at room temperature, said orientation being defined by a residual magnetic flux density $Br_{//}$ in a radial direction and a residual magnetic flux density Br_{\perp} in an axial direction perpendicular to the radial direction.

10. (Currently amended) A method for producing [a] an R-T-B based, rare earth sintered magnet comprising the steps of finely pulverizing an alloy for said R-T-B based, rare earth sintered magnet to an average particle size of 1-10 μm in a non-oxidizing atmosphere; introducing the resultant fine powder into a mixture liquid comprising 99.7-99.99 parts by weight of at least one oil selected from the group consisting of a mineral oil, a synthetic oil and a vegetable oil and 0.01-0.3 parts by weight of a nonionic surfactant and/or an anionic surfactant; subjecting the resultant slurry mixture to molding in a magnetic field; and carrying out oil removal, sintering and heat treatment in this order.

11. (Currently amended) The method for producing [a] an R-T-B based, rare earth sintered magnet according to claim 10, wherein the molding in a magnetic field is compression molding, and the compressed green body preferably has a density distribution of 4.3-4.7 g/cm³ to provide [a] an R-T-B based, rare earth sintered magnet having a main phase composed of an R₂T₁₄B intermetallic compound, wherein R is at least one rare earth element including Y, and T is Fe or Fe and Co.

12. (Currently amended) A method for producing a thin arc segment magnet having a thickness of 1-4 mm and made of [a] an R-T-B based, rare earth sintered magnet having a main component composition comprising 28-33 weight % of R and 0.8-1.5 weight % of B, the balance being substantially [Fe] T, wherein R is at least one rare earth element including Y, and T is Fe or Fe and Co, said arc segment magnet having an oxygen content of 0.3 weight % or less based on the total weight of the magnet, a density of 7.56 g/cm³ or more, a coercivity iH_c of 1.1 MA/m (14 kOe) or more at room temperature, and an orientation Br/4πI_{max} of 96% or more in an anisotropy-providing direction at room temperature, said method comprising the steps of finely pulverizing an alloy for said R-T-B based, rare earth sintered magnet to an average particle size of 1-10 μm in a non-oxidizing atmosphere; introducing the resultant fine powder into a mixture liquid comprising 99.7-99.99 parts by weight of at least one oil selected from the group consisting of a mineral oil, a synthetic oil and a vegetable oil and 0.01-0.3 parts by weight of a nonionic surfactant and/or an anionic surfactant; subjecting the resultant slurry mixture to

molding in a magnetic field; and carrying out oil removal, sintering and heat treatment in this order.

13. (Currently amended) A method for producing a radially anisotropic, arc segment magnet having an inner diameter of 100 mm or less and made of [a] an R-T-B based, rare earth sintered magnet having a main component composition comprising 28-33 weight % of R and 0.8-1.5 weight % of B, the balance being substantially [Fe] T, wherein R is at least one [of] rare earth [elements] element including Y, and T is Fe or Fe and Co, said arc segment magnet having an oxygen content of 0.3 weight % or less based on the total weight of the magnet, a density of 7.56 g/cm³ or more, a coercivity iH_c of 1.1 MA/m (14 kOe) or more at room temperature, and an orientation $[Br_{//} / (Br_{//} + Br_{\perp})] \times 100$ (%) of 85.5% or more at room temperature, said orientation being defined by a residual magnetic flux density $Br_{//}$ in a radial direction and a residual magnetic flux density Br_{\perp} in an axial direction perpendicular to said radial direction, said method comprising the steps of finely pulverizing an alloy for said R-T-B based, rare earth sintered magnet to an average particle size of 1-10 μm in a non-oxidizing atmosphere; introducing the resultant fine powder into a mixture liquid comprising 99.7-99.99 parts by weight of at least one oil selected from the group consisting of a mineral oil, a synthetic oil and a vegetable oil and 0.01-0.3 parts by weight of a nonionic surfactant and/or an anionic surfactant; subjecting the resultant slurry mixture to molding in a magnetic field; and carrying out oil removal, sintering and heat treatment in this order.

14. (Currently amended) A method for producing a radially anisotropic ring magnet having an inner diameter of 100 mm or less and made of [a] an R-T-B based, rare earth sintered magnet having a main component composition comprising 28-33 weight % of R and 0.8-1.5 weight % of B, the balance being substantially [Fe] T, wherein R is at least one rare earth element including Y, and T is Fe or Fe and Co, said ring magnet having an oxygen content of 0.3 weight % or less based on the total weight of the magnet, a density of 7.56 g/cm³ or more, a coercivity iH_c of 1.1 MA/m (14 kOe) or more at room temperature, and an orientation $[Br_{//} / (Br_{//} + Br_{\perp})] \times 100$ (%) of 85.5% or more at room temperature, said orientation being defined by a residual magnetic flux density $Br_{//}$ in a radial direction and a residual magnetic flux density Br_{\perp} in an axial direction perpendicular to the radial direction, said method comprising the steps of finely pulverizing an alloy for said R-T-B based, rare earth sintered magnet to an average particle size of 1-10 μ m in a non-oxidizing atmosphere; introducing the resultant fine powder into a mixture liquid comprising 99.7-99.99 parts by weight of at least one oil selected from the group consisting of a mineral oil, a synthetic oil and a vegetable oil and 0.01-0.3 parts by weight of a nonionic surfactant and/or an anionic surfactant; subjecting the resultant slurry mixture to molding in a magnetic field; and carrying out oil removal, sintering and heat treatment in this order.